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ARTICLES OF ASSOCIATION,

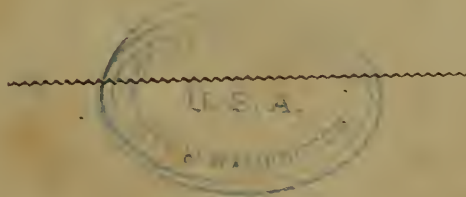
CONSTITUTION AND BY-LAWS

OF THE

✓
ASSOCIATION FOR PRACTICAL SCIENCE.

CINCINNATI, OHIO.

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CINCINNATI:
PRINTED BY JOHN WHITE,
Northeast corner of Fourth and Sycamore streets.
1847.

T.
A.
LAFAYETTE, INDIANA, April 27, 1847.

MESSRS. WENDELL, WRIGHT, and others,—

Gentlemen:—I have perused with much pleasure your plan for an Association for Practical Science. It meets my cordial approbation. If the project can be carried into execution, the advantages will assuredly commend it to every liberal and philanthropic mind.

The meritorious inventor will, by your fostering care, be aided in perfecting his designs, while the Utopian theorist is admonished against further expenditures on his visionary scheme; nor do I doubt that the stock of the company will afford a satisfactory remuneration for capital invested.

You will find, no doubt, many ready to join you, should capital or influence be needed. I ardently wish you success.

At an early moment, I will submit some suggestions in regard to further details of business, which may interest those associated in this most praiseworthy undertaking.

I am, most respectfully, yours,

HENRY L. ELLSWORTH.

P R E F A C E .

MANY discoveries of great moment, which might have been secured to mankind by a timely and liberal co-operation, have perished with their authors, who, though possessed of the elements of independence to themselves and blessings to millions, have, generally, been the victims of indigence and neglect. Some of the most valuable inventions now in use, narrowly escaped the oblivion that has befallen so many. Even the powers of Steam earned for their discoverer nothing but ridicule, and nearly a century elapsed ere his suggestions were carried into practical operation; and the originators of the art of printing were branded as sorcerers. These are, by no means, isolated instances: the history both of our own, and past times, is full of such. To remedy these and their contingent evils, is the intent of the Institution which is made the subject of this pamphlet.

To inventors it will extend such counsel, assistance, and co-operation, as will enable them to realize their designs, and secure to themselves much larger revenues than could be effected by their unassisted efforts. Experienced inventors cannot fail to appreciate the advantages of the ample mechanical appliances by which their apparatus will not only be got up in good order, but with great expedition, and at once disseminated over the country. Moreover, they will have abundant opportunity of carrying forward several designs simultaneously.

To capitalists, this institution offers—as is conceived—a prospect of large and *sure* returns for investments. This opinion is based upon the following view of the case, which is believed to be a correct one: The inventions, selected, as they will be, from among many, by men of science and practical experience, will, at all events, have every reasonable guarantee of practicability and excellence, and will, it is anticipated, in a large majority of cases, be profitable—but on a reverse supposition—one or two such inventions as might be enumerated would suffice not only to cover all expenses, but not yield a ample dividend.

OFFICERS OF THE ASSOCIATION.

COMMISSIONERS.

WENDELL WRIGHT,
GEORGE H. KNIGHT,
JOSEPH H. ATKINSON,
LEVI D. INGALSBE.

ADVISORY COUNSEL,

HON. HENRY L. ELLSWORTH,

Former Commissioner of Patents for the United States.

TRUSTEES.

JOHN P. FOOTE,
JOHN C. VAUGHN,
EDGAR M. GREGORY.

TREASURER.

WILLIAM BURNET.

SECRETARY.

L. D. INGALSBE.

GENERAL AGENT.

JOSEPH H. ATKINSON.

CONSULTING EXAMINERS.

Machinery.

GEORGE SHIELD,
THEODORE R. SCOWDEN.

Agriculture.

WILLIAM NEFF.

Chemistry.

CHARLES H. RAYMOND.

Hydraulics.

D. L. FARNAM.

Mathematics.

HORATIO N. ROBINSON.

Office in the MELODEON, corner of Fourth and Walnut streets.

ARTICLES OF ASSOCIATION,
CONSTITUTION, AND BY-LAWS,
OF THE
ASSOCIATION FOR PRACTICAL SCIENCE.

INASMUCH as many valuable discoveries have been lost to mankind, from the insufficiency of means within the reach of the authors thereof, and from other causes; and even of many of those which have involved years of toil and privation to mature them, the originators themselves have failed to realize any adequate share of the benefits; therefore, the following Constitution and Articles of Association, entered into by the several parties whose names are subscribed hereto, at the several dates conjoined with each name, witness:

That they have associated, and do hereby associate and bind themselves as a company, for the development and application of useful inventions, and the advancement of the arts and sciences, by affording facilities for securing to inventors, and to all participators in the institution, their just rights; and they do hereby bind themselves to the following Constitution and fundamental Articles and Rules, for the government and powers of said Company, and the Officers thereof; that is to say:—

CONSTITUTION.

ART. I.—APPELLATION.

SEC. 1. The name of this institution shall be "THE ASSOCIATION FOR PRACTICAL SCIENCE."

ART. II.—CAPITAL STOCK.

SEC. 1. The Capital Stock shall be defined in the By-Laws, and shall be held in shares of ten dollars each.

SEC. 2. No stockholder shall be held liable beyond the amount of his stock.

SEC. 3. Stock shall be transferable only on the books of the Association.

SEC. 4. After the first stock has all been issued, applicants not having stock shall be supplied with shares from the stock of those who possess more than one hundred shares, as prescribed in the by-laws, and on the following terms, namely: the amount paid up, together with a sum equal to the last year's dividend.

SEC. 5. Until the whole capital stock is issued, any right or interest this Association may have in any patent or other property, over and above the amount paid up, shall be declared, and shall be dividends in stock.

SEC. 6. After the whole of the capital stock is issued, said surplus right or interest shall not become stock or capital, but—except cash divisible as dividends—shall be joint property of the Association, for the uses of the same.

SEC. 7. After the whole capital stock is issued, all the clear profits in cash, from the operations of the Association, shall be declared, and shall be dividends on the stock paid.

SEC. 8. Whenever the dividend of the Association amounts to fifty per cent., the books of the Association shall be opened for subscription to the amount of ten thousand additional shares, but no one shall, on this subscription, subscribe for more than ten shares.

ART. III.—OBJECTS OF THE CAPITAL.

SEC. 1. To provide a suitable establishment to investigate and mature all new discoveries and inventions that may be offered by their authors, and adopted by this Association. Such establishment shall consist of a complete experimental manufactory, with necessary appendages, as prescribed in the by-laws, and shall contain a secret department for the purpose of maturing inventions intended to be patented.

SEC. 2. To carry into successful operation, and dispose of the products of the Association.

SEC. 3. To establish and carry on a system of instruction, connected with the institution, devoted to the promulgation of the laws and practice of mechanics, agriculture and science.

ART. IV.—SUFFRAGE.

SEC. 1. Until fifty thousand shares are issued, each stockholder shall be entitled to a vote for each share he holds, up to ten; after which no person shall have more than one vote.

SEC. 2. An inventor whose plan is adopted, and is in possession of the Association, but who is not a stockholder, shall have all the privileges of a ten-share stockholder, except the receipt of dividends.

SEC. 3. Absentees may vote by written certificate only, directed to the Secretary.

SEC. 4. Any one who shall make use of any fraudulent means of voting, shall forfeit all his interest and stock in the Association.

SEC. 5. Stockholders who are so merely by transfer, shall have no vote until their names have been three months on the stock book of the Association.

ART. V.—MEETINGS.

SEC. 1. After twenty thousand shares of stock have been subscribed, a majority of the voting members may at any time call a meeting, for the election of officers.

SEC. 2. A majority of the votes cast, to decide in all questions of this Association, except where otherwise provided for.

ART. VI.—ELECTIVE OFFICERS.

SEC. 1. The elective officers shall consist of a Board of Directors, including the President and Secretary of the Association, and of Trustees, and a Treasurer.

ART. VII.—LIMITS.

SEC. 1. The Directors shall not, either in their individual or collective capacity, involve the Association beyond the amount of capital paid in.

ART. VIII.—INVENTORS.

SEC. 1. Any person whose invention is adopted by the Association shall be entitled to one-third of all the clear profits of his invention.

SEC. 2. But allowances may be made in favor of inventions which are patented, practically tested, or brought into use; and such may be the subject of special contract between the Association and inventor.

SEC. 3. All operations relative to inventions shall be at the expense of the Association.

ART. IX.—CONTRACTS.

SEC. 1. All differences between members of this Association shall be settled by arbitration, as prescribed in the by-laws.

SEC. 2. No one (except the mere purchaser of products,) shall transact business with this Association, who has not obligated himself to abide by the laws and regulations of the same.

ART. X.—LOCATION.

SEC. 1. The main establishment of this Association shall be located either in the city of Cincinnati, or within one hundred miles thereof.

ART. XI.—PROVISIONAL ARRANGEMENTS.

SEC. 1. Until the meeting convened in accordance with Sec. 1., Art. 5., of this Constitution, the business of the Association shall be conducted, and certificates of stock signed by, and the responsibilities of the Directors (including those of the President and Secretary,) vested jointly in three commissioners, namely:—Wendell Wright, George H. Knight and Joseph H. Atkinson, all of Cincinnati, in the county of Hamilton, and State of Ohio, and such others as they, by a unanimous vote may appoint.

SEC. 2. Until the meeting convened in accordance with Sec. 1., Art. 5., of this Constitution, the responsibilities of the Trustees, and those of the Treasurer, shall be vested in such persons as the Commissioners may appoint.

ART. XII.—SUB REGULATIONS.

SEC. 1. The Sub Regulations for carrying into effect this Constitution, shall be the province of the accompanying by-laws.

SEC. 2. Any alteration or addition to the by-laws must be proposed at a meeting of the stockholders, at least three months before the one at which action is taken on it, and shall require a majority of the votes cast.

ART. XIII.—CHARTER.

SEC. 1. A Legislative Charter may be adopted at a regular meeting of the stockholders, public notice having been given at least three months previous.

ART. XIV.—AMENDMENTS.

SEC. 1. Any alteration or addition to this Constitution, must be proposed in writing at one annual meeting, and lie over for action to the next, and shall require a majority of two-thirds of the votes cast.

STATE OF OHIO, }
 City of Cincinnati, } ss.

Before me, Mayor of said city, personally appeared Wendell Wright, George H. Knight, Joseph H. Atkinson, and Levi D. Ingalsbe, who made oath to keep secret all business confided to them as such, in connection with the Association for Practical Science.

WENDELL WRIGHT,
 GEORGE H. KNIGHT,
 J. H. ATKINSON,
 L. D. INGALSBE.



In testimony whereof, I have hereunto set my hand, and affixed the corporate seal of said city, this 14th day of April, 1847.
 H. E. SPENCER, *Mayor*.

FORM OF APPLICATION FOR INVENTORS.

To the Directors of the Association for Practical Science:

I hereby present, for your consideration, the accompanying plans of _____ (of which I am inventor,) subject to the laws and regulations of the said Association, which I have seen and examined, and agree to abide by. A. B.

Cincinnati,

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FORM OF APPLICATION FOR STOCK.

I hereby request you to furnish me with _____ shares of the Capital Stock of the Association for Practical Science, in conformity with, and subject to, the Constitution and By-Laws of the same, which I have seen and examined, and agree to abide by. A. B.

Cincinnati,

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Address Box 13, Post Office, Cincinnati, Ohio.

BY-LAWS,

PROVIDED FOR IN ARTICLE 12, OF CONSTITUTION.

ART. I.—STOCK.

SEC. 1. Books shall be opened for the sale of stock, on and after the nineteenth day of April, 1847, to the amount of Five Hundred Thousand Dollars, in shares of Ten Dollars each.

SEC. 2. Each subscriber shall pay in, at the time of purchase, two dollars and a half on each share subscribed for, and an equal sum at the expiration of six months, and the balance, on notice being given six months previous, by newspaper advertisement, in Cincinnati, Washington, New-York, Philadelphia, Boston, Baltimore, St. Louis, New Orleans, Charleston, Pittsburgh, Louisville, Montreal, Ca., and such other cities as the Directors see fit.

SEC. 3. Dividends shall be declared semi-annually on the stock paid up.

SEC. 4. All dividends on shares not paid up, shall be retained and placed to the credit of the said shares.

SEC. 5. The mode of proceeding by which an applicant is supplied with stock, under Sec. 3., Art. 2., in the Constitution, shall be as follows: The Secretary, on receipt of application and payment, shall transfer to the applicant stock as provided in the section alluded to, place the payment to the credit of the person levied on, and notify him of the same. The stock of the largest holder shall be the first liable, and of those who possess equal amounts, the last on the list. No more than ten shares shall be transferred to one person under this regulation.

SEC. 6. Any stockholder failing to pay up his instalments within ninety days after the time specified, shall forfeit his stock and all his interest in the Association.

ART. II.—MEETINGS.

SEC. 1. After the meeting of stockholders, according to Sec. 1., Art. 5., of Constitution, a general meeting of the stockholders shall be held annually, on the first Monday in May, in the city of Cincinnati.

SEC. 2. The members present shall form a quorum at all meetings of the Association, unless otherwise provided.

SEC. 3. No member shall speak more than fifteen minutes at a time, and a member who has not spoken shall take precedence of one who has.

SEC. 4. The proceedings of the meetings of this Association shall be conducted in accordance with the principles set forth in Jefferson's Manual, so far as applicable, except as herein otherwise provided for.

ART. III.—ELECTIONS.

SEC. 1. There shall be an election of officers at the annual meeting of the Association—the Trustees to serve during good behaviour, and the others for one year.

SEC. 2. Any vacancy may be filled at any meeting of the stockholders.

ART. IV.—OFFICERS.

SEC. 1. It shall be the duty of the President to preside at all meetings of the Association, and, in case of a tie, to give the casting vote, and to countersign certificates of stock, and all documents emanating from the Board of Directors.

SEC. 2. In the absence of the President, a Chairman shall be appointed to take his place.

SEC. 3. It shall be the duty of the Secretary to record the proceedings of all meetings, keep the books of the Association, sign certificates of stock, and all documents emanating from the Board of Directors, and make full reports, annually, quarterly, and when required, of all the proceedings thereof, to the Board of Directors and the stockholders, to whom his books must be accessible at all business hours. Any time after the first meeting, according to Sec. 1., Art. 5., of the Constitution, it shall be the duty of the Secretary, at the request of any ten members, to call a meeting of the stockholders, and he shall cause such call to be published at least three times in two of the Cincinnati papers, during the week preceding such meeting, and notice thereof served upon the members residing in the city and its vicinity.

SEC. 4. It shall be the duty of the Treasurer to receive and take charge of all the moneys of the Association, and pay all bills ordered by the Directors, signed by the Secretary and countersigned by the President, and to report, quarterly, annually, and when required, to the Boards of Trustees and Directors, and to the stockholders, to whom his books must be accessible at all business hours.

SEC. 5. The Board of Directors (seven of whom shall constitute a quorum,) shall consist of thirteen in number, including the President and Secretary of the Association, and it shall be their duty to take charge of and direct the business of the Association. They shall refer each application of inventors to a staff of confidential examiners, appointed by themselves. The directors shall appoint the General Agent, and all other necessary officers, not otherwise provided for.

The General Agent may appoint agents.

Any office becoming vacant may be filled by the Directors, until the ensuing meeting of stockholders.

Subsequently to the meeting convened according to Sec. 1, Art. 5, of the Constitution, any officer or agent of this Association may be suspended or removed from office by a vote of two-thirds of the Directors; and, before that period, by a unanimous vote of the Commissioners.

The Directors shall report to the annual meeting, and oftener, if required.

SEC. 6. The Trustees shall be three in number, and shall hold in trust, for the Association, all the property thereof; shall audit the accounts of the Treasurer, and report, annually, and when required, to the Directors and stockholders.

SEC. 7. All persons connected with the Secret Department, shall obligate themselves, by oath or affirmation, to keep secret all business confided to them as such.

SEC. 8. Any officer of this Association, who shall neglect, during two months, the duties of his office, shall forfeit the same.

SEC. 9. The remuneration of the elective officers shall be determined by the stockholders, and that of all others in the employ of the Association shall be determined by the Board of Directors.

ART. V. — ARBITRATION.

SEC. 1. Either party shall choose one or more jurors, not exceeding three, who shall serve on the defendant or defendants, a written notice of their number and the time and place of meeting.

SEC. 2. And the second party, or defendant, shall appear at the time and place appointed, with the same number of jurors, who shall unite with the other jurors and proceed to examine the evidence and settle the difference.

SEC. 3. But if either party shall fail to bring forward his complement of jurors, the juror or jurors present shall proceed to supply the deficiency.

SEC. 4. And if any juror shall fail to attend, his place shall be supplied by the juror or jurors present.

SEC. 5. The jurors shall be at liberty to call to their assistance such persons as they may think proper, until a decision shall be made.

SEC. 6. But either party being dissatisfied with the decision of the said jurors, may appeal therefrom to a second tribunal, chosen in the same manner as the first, the dissident making the first selection, not exceeding five.

SEC. 7. The decision of the second tribunal may be appealed from in like manner, neither party choosing more than seven, and the decision of the third tribunal shall be final.

SEC. 8. All appeals must be made within ten days of the decision.

SEC. 9. The jury shall, in all cases, except the parties differing otherwise agree, make written judgment, signing their own names to the same, giving the statements of the witnesses in their own language, and any statement of either party that he may wish recorded.

SEC. 10. The jurors shall cause to be prepared a copy of the judgment for each party in the suit.

SEC. 11. Any party or parties in the suit may have the proceedings published, but shall not publish less than the whole, unless with the consent of all parties.

SEC. 12. All jurors under these regulations shall be duly sworn or affirmed, according to law, before proceeding in any case.

SEC. 13. Reasonable notice, at the discretion of the jurors, shall be given in all cases.

ART. VI.—EXPERIMENTAL ESTABLISHMENT.

SEC. 1. The Experimental Establishment shall consist of shops, with conveniences; such as tools, power machinery, and materials adapted to the manufacturing operations of the Association.

SEC. 2. A department devoted to Natural Science, including a Chemical Establishment and an Experimental Farm.

SEC. 3. A department of Fine Arts, including a Drafting department.

SEC. 4. Model and Specimen Depositories, Libraries, Lecture rooms, Halls for exhibition of products, &c.

SEC. 5. A certain portion of the establishment shall be set apart by the Directors for the confidential business of the Association, under the name of the Secret Department, which shall contain archives for the purpose of recording any ideas that may be suggested in accordance with the regulations herein provided.

ART. VII.—PLANS.

SEC. 1. The last hundred shares of stock on the first issue shall be set apart and appropriated for premiums to the presentors of the best plans for the operative establishment of this Association, on a maximum estimate of two hundred thousand dollars.

SEC. 2. The premiums shall be awarded in such a manner as the Association, in its collective capacity, may determine.

ART. VIII.—INVENTORS.

SEC. 1. The mode of proceeding by which an individual may negotiate with the Association, in the capacity of an inventor, shall be as follows:

SEC. 2. The applicant shall present a written description of the subject of his invention, with his signature attached, and a duplicate of the same, to the General Agent, who shall sign both, and having returned one copy to the applicant, shall lay the other before the Board of Directors, who shall place in the hands of the Agent their decision, to be forwarded to the applicant.

SEC. 3. The act of application by the inventor, shall constitute a right on the part of the Association to receive for consideration, and to adopt or decline the subject thereof.

SEC. 4. And if the subject of application by the inventor, be adopted, it shall be the right and duty of the Association to proceed, with the assistance of the inventor, to develop the same, and—if patentable—in due time to take out Letters Patent therefor, in the name of the inventor; and said Association shall have the entire control over, and right to dispose of, the subject of the invention, and to two-thirds

of the net proceeds thereof; and the inventor shall render such assistance as may be necessary for developing and patenting the invention.

SEC. 5. Where the decision is to receive the subject of application for further examination, the applicant shall be furnished with such means as may be agreed upon, to develop the same.

ART. IX.—CONTRACTS.

SEC. 1. After a machine is matured, the manufacturing shall be done by contract, unless three-fourths of the Directors shall decide otherwise.

SEC. 2. In any disposition of an interest in a patent, or any contract, the co-holder or co-holders shall have the preference, at the same price.

ART. X.—HONORS.

SEC. 1. Medals and certificates of merit shall be offered by the Directors at each annual meeting, and awarded by a committee of stockholders, at the next.

ART. XI.—PROFESSORSHIPS.

SEC. 1. The Association shall institute Professorships in various branches of Science and Art.

SEC. 2. There shall be appointed at the annual meeting of stockholders a corps of scientific men, having authority to grant diplomas in the name of the Association.

ART. XII.—PUBLICATIONS.

SEC. 1. The annual report of the Directors shall be published, and a copy forwarded to the address of each stockholder.

At a meeting of the Commissioners of the Association for Practical Science, held in Cincinnati, on the 14th of April, 1847, the following appointments were made, viz:

LEVI D. INGALSBE, *Commissioner and Secretary*.
 JOHN P. FOOTE, JOHN C. VAUGHN, and EDGAR
 M. GREGORY, *Trustees*.
 WILLIAM BURNET, *Treasurer*.
 JOSEPH H. ATKINSON, *General Agent*.

On behalf of the meeting,
 GEORGE H. KNIGHT, *Secretary pro tem*.

TO THE PUBLIC.

IN the foregoing pages will be found the Constitution and By-Laws of an organisation for the encouragement of Inventors, the development and application of useful Inventions, and for the advancement of the Arts and Sciences, which are so valuable in civilising and humanising the family of man. It is believed to possess peculiar claims upon your consideration, to which, for a short time, we will call your attention.

This is a favourable period for the establishment of such an Institution. The power of ignorance and superstition, that bound the past, is, in a great measure, overcome, and the discoverer of an important principle, or the application of it, is no longer scorned as a foolish dreamer, or cast out as a servant of the Devil. Such has been the progress of Discovery and Invention, during the last half century, that mankind begin to have confidence in the capability and power of the human mind. Enough from the world of Law and Order is revealed to man, to convince him of its boundless extent, and of the exhaustless infinitude of its objects, adequate to engage eternally the utmost faculties of man. Man has just obtained a glimpse of the Universe, and feels something of its magnitude and grandeur. This knowledge he has obtained by his own research and ingenuity, and the mind has been led into such an extended field, and has so expanded its conceptions, as to look no longer with doubt and distrust upon any revelation which the penetrating and almost prescient genius of man may claim to have made. Half a century back, such an Institution would have been almost useless, because there was not sufficient confidence in the capacity of man, and those who claimed to have made important discoveries could not find a listening ear, even among their intimate friends. There has also been an insurmountable prejudice against everything new, and olden things appeared so consecrated in the affections of the people, that the contact of the new seemed

almost a desecration. Now, this prejudice is nearly overcome; indeed, we may say quite vanquished, as to the world of Physics, although it is yet strong in relation to everything new drawn from the realm of Metaphysics. We say, then, in view of these considerations, that now is the propitious time for the successful establishment of the Institution to which our attention is directed. Those in whose hands may be placed the interests of Inventors, on the one hand, and of the Public on the other, being men of liberal views and enlarged apprehension, will appreciate everything new that may be presented to their notice, and perceive its value in practice. There will, therefore, be no danger of losing a discovery, because its utility could not be made apparent, while many would be saved, and many more speedily brought into use, by the liberal assistance which indigent discoverers and inventors can at all times receive.

Let us now, for a moment, glance at the field of Invention, which is but a manifestation of scientific principles, made subservient to practical good. Herein we learn much of the triumphs of mind. Man seems to have been created weak, that he might make himself strong. He seems to have commenced his career in a very humble and apparently unpropitious attitude, but with a glorious destiny before him, and with capabilities of finally reaching its lofty elevation. Look at the world of Humanity. What is it now. Look at the past, by the light of history. How wonderful the contrast. How contrasts the present with the time when man roamed the earth, a wild and untamed savage! How contrasts the present with the early dawn of civilisation, when human butchery was the universal trade, and few were found to seek the temple of Learning, of Science, and of Philosophy! How contrasts the present with that period of Grecian greatness, when the pure and noble Socrates was brought into public contempt by the power of ridicule, and sentenced by a boasted people to drink the fatal hemlock! How contrasts the present with that period of Roman glory, when Sylla, to secure success in an election, was compelled to promise the people more magnificent shows of wild beasts, and actually let loose, in the circus, a hundred maned or male lions, and taught the people the Mauritanian method of baiting and fight-

ing them! How contrasts the present with a period of a few centuries back, when there was little learning, and that embodied in traditions, or manuscript books accessible only to the wealthy nobility, and when the mass of the people lived in hovels without floors or chimnies, and reposed at night upon the straw-covered earth! How contrasts the present with even the period, a hundred years ago, when nearly every branch of industry was conducted almost entirely by manual labor, unaided by machinery; when the comforts of life were within the reach of the wealthy alone; when the steamboat sailed not the ocean, the lake, or the river; and when commerce rarely sent her visitors to foreign parts! What has caused the astonishing difference? We have no right to attribute it solely to any particular cause, for the causes are as various as are the enterprises and investigations which promote human advancement. Yet, we can readily conceive that some causes have been, and continue to be, more powerful than others. And when we say that the products of the Inventive Genius have done more than any other, or even than many other causes combined, to develop and civilise the race, we shall not do injustice to any other agent of Progress.

The ancients were distinguished by their Poetry, Painting, Sculpture, researches in Philosophy and Mathematics, and by their heroic qualities in the tragedy of War. But, with all their acquisitions, they brought little before the mass of the people, to startle them into mental activity. With all their time-honoured acquirements, they did not attain that position of intellectual sagacity and moral excellency, which recognises and acknowledges the true relations of man to man; and hence, the mass of the people were ever in the most abject bondage and ignorance.

To judge something of the effect which Inventions and Machinery have had upon civilisation, turn to the Art of Printing, first discovered in the early part of the fifteenth century, a little more than four centuries ago. Previous to that event, books were written with the pen, and, consequently, but few could have access to them, and fewer still were rich enough to own them. This prodigious Art has risen from extremely small beginnings. At first, it was confined to a kind of engraving—the figures and characters

being cut in wood. The earliest specimen now known, bears date 1423. In a very few years from this, the Art was carried on to a more important object,—that of producing a book. To accomplish this, the letters were all cut upon a solid block of wood, and, consequently, were of no service after printing the book for which they were made. Several such books are now in existence, and are known as block-books. One of them is commonly called “*Biblia Pauperum*,” the Bible of the Poor; though an ingenious writer has shown that this was not the original title of the book—it being designed rather for the use of preachers than the laity, as it appears to be “a series of skeleton sermons, ornamented with wood-cuts, to warm the preacher’s imagination, and stored with texts, to assist his memory.” This book consists of forty leaves of small folio, each of which contains a cut, with Scriptural extracts, and other illustrative sentences. The second most remarkable of these block-books, is entitled “*Speculum Salutis*,” the Mirror of Salvation. In this, the commentaries are more extensive than in the “*Biblia Pauperum*.” In addition to these, wooden blocks were also used, to print small manuals of grammar, called *Donatuses*, which were used in schools. But the first great improvement in this Art was soon made, being suggested by the use of carved blocks, for the multiplication of playing cards and devotional pictures. These pictures had short legends or texts attached to them, which were engraved in a solid piece, as well as the picture. Now was brought to light the principle upon which this wonderful Art was to depend; to wit: the manufacture of the letters separately, so that they might be re-arranged after the impressions were taken off, and be applied, without new cutting, to other texts and legends. It was thus easy to extend the principle from a few lines to a whole page, and from one to many pages, so as to form a book. But the Art was attended with enormous expense, for the letters were separately cut. Accordingly, a third step was soon taken, and a mode of casting the types was invented. This process was slow, also, because each letter was cast separately. The great expense attending the practice of this Art, even in the third stage of its progress, is seen in the fact that 4,000 florins were expended before the third quaternion, or gathering of four sheets, was completed.

To John Guttenberger, a citizen of Mentz, is ascribed the honour of inventing this great engine of civilisation—the Printing Art. In the difficulties which he had to surmount, is seen the great value of such an Institution as the one we have in view. It is known, that in developing any new invention or discovery, vast amounts are frequently expended in experimenting, and it rarely happens that the Inventor is possessed of sufficient wealth to complete the manifestation of his conceptions. Many, after expending all their means, and involving themselves greatly in debt, have been forced to relinquish, with deep chagrin, their favourite object. Such liked to have been the case with Guttenberger; for, after expending almost the whole of his property in the invention of his Art, he still found the difficulties in his way apparently insurmountable, and was about to abandon it altogether. Fancy the probable condition of the world at the present time, had he been compelled to adopt such an alternative! Perhaps the Art would have still remained in the unlocked arcana of wonderful things. If so, man could not have reached his present high position. The rudeness of savagism must have hung upon all his operations. Where now is the triumph of mind, and the reign of Divine Goodness, animal ferocity and superstitious mockeries would prevail. Where now

“The slave stands forging from his chains
The spade and plough,”

the crimson current would smoke on the battle-plain. Where now

“Glad school girls, answering to the bell,
Come crowned with flowers,”

the spectacle of bull-fights, tournaments, or single combats, would constitute the debasing amusement of the old and young. Where now temples, in which all can worship at their pleasure, send up their spires toward the heavens, to keep man in constant remembrance that he must look upward to attain his destiny, the inquisition, the rack, or the stake, might be found the sad monuments of human ignorance, superstition and barbarity. And where now the people live in the enjoyment of Republican liberty, and dictate the

laws that shall govern them, an imbecile king, or a foolish queen, might sway the sceptre over a degraded people, and heartless despots trample on the necks of their prostrate quarry. But no; thanks to the moral and intellectual light that beams so brightly from the noble Art that sends upon every breeze,

“Thoughts that breathe, and words that burn.”

Old things have passed away before the majestic march of the new order, and while it is fast accomplishing the ruin of everything evil, it elevates whatever of good there has been, or may be, up to the better.

But this Art, which has accomplished so much, had like to have perished in the struggles of its birth. While Guttenberg was about to sink beneath the burden of his discovery, John Faust, in the spirit that characterises our projected Institution, came to his relief, and the rescue of his Art. By their united efforts, the contemplated improvements were perfected. Peter Schœffer, a servant of Faust, invented a method of casting types, with which his master was so much pleased, that he gave him his daughter Christina in marriage. These three kept the Art concealed by an oath of secrecy, imposed upon all whom they intrusted, until the year 1461, when, by the dispersion of their servants into different countries, at the sacking of Mentz by the Archbishop Adolphus, the invention was publicly divulged. Whether it was kept a secret from selfish motives, or through fear of the superstition of the people, it is difficult to determine.

What is now the condition of the Printing Art, and what has it not accomplished? The time has been even in the memory of our young men, when the practice of the Art was comparatively slow, and exceedingly laborious. A few years ago, a Pressman could only throw off about 180 sheets per hour, with the severest labour. Now, to the honour of Inventive Genius, be it said, from 12,000 to 15,000 sheets can be printed in the same time, with the greatest ease to all engaged! Half a century ago, there were about 100 serial publications in the land; now there are about 1500, bearing their daily, weekly and monthly messages to the people of every city, village, township and hamlet in the nation,—messages of Science, Philosophy, Thought and Feeling, to awaken the whole mind of the Republic, and raise it nearer to the True, the

Good, and the Great. Three centuries since, few books besides the Bible, and its commentaries, were issued from the Press; now it produces hundreds every month, embodying the gleanings of the mind from every department of human research. It brings within the reach of every mind the most ample material for its full development, and, by its aid, the race has fairly commenced the bright career of its progress. Tyrants have been made to bow to the majesty of the people, and each one begins to feel that he is himself a man! By its aid, all can profit by the counsel of the wisest, and the best hearts can communicate the spirit of their holy pulsations to every heart of the world of Humanity, and thus call into active manifestation that which is divine in our nature.

But we must not dwell here. Go with me to that delightful eminence that overlooks La Belle Riviere. Glancing up and down, we behold the most charming scenery that ever poet's or painter's fancy conceived. Could we roll back the tide of Time only three quarters of a century, we might behold the bear, the wolf, and the deer, coming from their deep, dark forest retreats, to slake their thirst from the freely-flowing waters. Or we might hear the fierce Indian war-whoop, over the hills on either side. Louder and more terrific become their battle yells, as they approach the shore. They are two hostile tribes. Anon the canoes are unmoored and pushed out on the peaceful tide, filled with stalwart warriors panting for victory. As they approach, volleys of feathered deaths are sprung for the victims, and many a hero makes the wave his winding sheet. Now the hostile barks meet and mingle. Rapidly they brandish the battle axe, and thickly fall the foemen, whose flowing life crimson the chrystal current. The sun is sinking in the West; but still the battle rages. At length the shout of victory is heard, and the conquerors retire to their fires to dance a horrid glee, while the victims silently and sullenly endure the pains inflicted by their torturers. Now turn we to the present, and what is the scene presented to our view? Not of wild beasts, for civilisation has demolished their lairs; not of brutal men engaged in deadly conflict, for they have receded before the white man's tread, and the falling of the forest at the woodman's stroke. Dismal howls and frantic yells no longer startle the hearer; but, instead thereof, the cheer-

ing "Song of Steam" is heard playing one of the most eloquent marches for the "eternal step of Progress." Instead of the frail canoe, the steamboat, giant of the deep, ploughs her rapid course, laden with the products of every clime. Our mighty lakes and rivers are thronged with these floating palaces, which distribute throughout this vast valley, teeming with a happy people, the products of our foreign brethren, and, in exchange, carry away her millions of wheat and corn. Look; but a short distance from where we stand, on yonder hill, can be seen the demolished grave of him whose Inventive Genius did so much to produce the marvelous change we have beheld. He taught the world how to command this powerful element, and make it the moving spirit of navigation. To make the grand discovery, he toiled amid the jeers of mocking friends, unaided by those of abundant means, until his own purse was drained, his energy exhausted, and his beggary completed. Though he was thus unable to bring the invention to such a perfection as to convince his doubting and jeering fellows, yet he comprehended the whole, and looked forward with prophetic vision to the glorious triumph of the power of steam, which distinguishes the present. To some of his friends, these were his prophetic words: "Well, gentlemen, although I shall not live to see the time, you will, when steamboats will be preferred to all other means of conveyance, and especially for passengers; and they will be particularly useful in the navigation of the river Mississippi." He then retired, when a person present observed, in a tone of deep sympathy, "Poor fellow! what a pity he is crazy!" This was but a short time previous to his death, in 1796. He was buried on yonder hill, in accordance with his wish, "where the song of the boatmen would enliven the stillness of his resting place, and the music of the steam engine soothe his spirit!" Had Fitch met with such encouragement as this Institution will be able to afford, he could have perfected his plans, and we should be now, at least, a quarter of a century ahead of our present position. As early as 1785, he conceived the steamboat, but the first one was not launched in the Ohio until 1811, fifteen years after his death. As late as 1794, four keel-boats, each of twenty tons, and occupying one month in going and returning, performed all the carrying trade between Pitts-

burgh and Cincinnati. These were so constructed as to be safe against rifle or musket balls, and with port-holes for firing out at the insidious Indian, or daring robber. What have we now in the space of thirty-six years? We have 750 steamboats on our western rivers, and the commerce of our lakes and rivers is estimated at the annual value of not less than \$300,000,000! Such is a partial view of the influence of Inventions and Discoveries on civilisation. Is not, then, the enterprise of fostering and encouraging the Inventive Genius of the world, a noble one? It is doing more than all other powers combined, to work out the great problem of Human Progress, and the more it is aided in its efforts, the sooner will the solution be gained.

Look, too, at another branch of improvement, which has grown out of the same invention,—the Railroads that comparatively annihilate time and space. It is but a few years since the first track was laid; now we have 5,091 miles of Railroad—more than all Europe and England. In England, the first locomotive traveled at the rate of six miles per hour. In 1829, they gained a speed of fifteen miles per hour; in 1834, twenty miles; in 1839, thirty-seven miles; and now locomotives are running forty-two miles per hour. In 1763, it required nearly a month to transmit a letter from Detroit to New York; now it can be done in three days. Such is progress under the touch of Genius. Shall it be fostered? Whether she find her abode in princely halls, or in the hovels of the poor, shall she not meet a liberal hand of encouragement, that her efforts may ever tell in the cause of human improvement? The race is far from that high position which might be occupied, had all ingenious persons been able to employ their Inventive powers. Many brilliant conceptions have been lost to the world, because of poverty and neglect, and many more will be, or, at least, delayed in their manifestation for the good of man, unless an Institution of similar character to the one before us, shall be established, to encourage Inventors and Discoverers. Though so much has been done, yet think not that the whole field has been explored. We have no right to limit the range of Nature, for she is infinite; neither are we authorised to set bounds to the researches and discoveries of the human mind, because we know of no limit fixed to its development.

It has accomplished enough within the past few years to convince all of its almost boundless capabilities. From what has been achieved, we have no right to say what may not be accomplished.

Here we might pause a moment, to inquire into the Mission of Mechanical Invention. Much has already been hinted, but the various points of the subject might be embodied here.

1. It is to carry forward the improvement of civilisation. Invention of machinery began on a large scale, in 1791, and behold, how rapid has been the advancement of man in every department of human enterprise! But enough has been said on this point.

2. Its mission is to enable the people to enjoy all the conveniences of life, as well as those things which are tasteful, and, at the same time, to so mitigate and diminish his labour, that he will not be forced to endure an oppressive amount of toil, and, also, to give abundant leisure for mental cultivation and gratification. The spirit of mind has gone forth to call the people to judgment. An enthusiasm for mental development is being enkindled, which will not die till all shall be enabled to procure enough of the means of livelihood, without sacrificing the noblest portion of their being. The incubus of servile toil, the doom of unremitting labour, must be removed. How shall this be done? is the great question. Were all men to labour with their own hands incessantly, they would be able, without mechanical power, to supply but a small portion of their wants. The working classes of Great Britain, by the aid of machinery, perform the labour of 300,000,000 of men. How, then, shall all receive the benefit of mechanical improvements? Before this question can be solved, there must be further development of the common mind. To this important end, do the Inventions and Discoveries that have been, and are being made, greatly contribute. They appeal to the mind understandingly, and startle its powers into activity. What is the language spoken by that flight of cars through plains, valleys, meads and forests? It comes to every ear with the thundering message that the mind has power, and every one possesses that, whose cultivation would ennoble his character. What is the sermon preached by that simple wire that unites city to city, throughout the Republic, enabling the people of distant places to hold familiar conversation? It is but another rev-

elation of the might of mind. It is another messenger from the Eternal God, telling all mankind that they can rise toward Him in greatness, and be like the Perfect One! Thus, is the general mind cited to improvement, which, when it shall be adequately attained, will enable it to command the mechanical power of the world, and throw the heavy loads now weighing the people down, upon iron bones that never tire, and insensible muscles that know no weariness, nor waste away by excessive use. This is the mission of Invention—to devise machines for performing the labour of the world, and supplying the wants of all mankind by a merely pleasurable toil. To accomplish this, much is yet to be produced by Inventive Genius, and the more it is fostered, the more rapidly will it fulfill its mission. Much is said by some, of the questionable utility of machinery to the labouring classes; but we say that Invention and Discovery are the legitimate pursuits of mind, and whatever may be their present effect upon the masses, we are certain they will gradually bring man to a truer state, and ultimately work out the great problem now before the world.

3. But the Inventive Genius has a still nobler mission to fulfill; being nothing less than uniting the human family in the embrace of one common brotherhood. Already has it done much to consolidate the nations. Steam has brought distant continents into one neighbourhood; Railroads are blending into one the people of all portions of the same continent, overleaping the boundaries of Kingdoms and States, and constituting the connected arteries through which flows a common life-current, warming, actuating and harmonising those who have heretofore hated each other, and never hoped to meet, except in the deadly conflict. The Magnetic Telegraph, too, bears, in an instant, the cordial salutation from one friend to another far distant, and has but just begun its great work of affixing a common family seal to the affections of the people, in every part of the continent. To Inventive Genius, Commerce owes her present dignity and glory; and what is not Commerce doing to bring together the whole family of man? Her sails fill every sea, and salute every people. The most exclusive and unsocial of mankind have been compelled to return the salutation, and meet the rest of their fellow men in commercial relations. In

the footsteps of Commerce, follows the light of Science and Literature, and barbarous nations are pointed to a higher state of existence. Glorious mission of Inventive Genius! Speed on thy beautiful career, and consummate the alliance of all nations and tongues! At thy bidding, war has already bowed his horrid head, and the sweet spirit of peace is folding, in her gentle embrace, the hearts of all mankind. "Lands intersected by a narrow frith," no longer "abhor each other;" "mountains interposed," no longer "make enemies of nations;" but all are blending together into one, and the glad song of peace, harmony, and happiness, is filling the earth with its soul-refining strains.

4. Inventive Genius reveals to man the magnitude of his nature, and inspires him with hope. Where there is little hope, there is little advancement. Man must look upward to the Higher, desire its attainment, and confidently expect to reach it, else he will not be incited to adequate energy in self-improvement. The most hopeful are always the most active. They look to that, the realisation of which will amply reward every struggle and every sacrifice that can be made.

"With thee, sweet hope! resides the heavenly light
That pours remotest rapture on the sight:
Thine is the charm of life's bewildered way,
That calls each slumbering passion into play."

Disappointment may attend our favourite schemes; failure may be the issue of many plans carefully conceived and cautiously adopted; adversity may meet us at every step, and lower over our heads in dismal gloom; still, the star of hope, beautiful and bright, beams enchantingly over all, and, like a guardian angel, sustains and animates under discouragement, those who are moved by her inspiration. She sits above all the ruins of time, smiling consolation over the toils, wars and misfortunes of mankind, and invites the stricken sons of humanity upward and onward to the beauties and blessings that are in store for all who are earnest in their laudable efforts, and vigilant in well-doing.

“Hope! when I mourn, with sympathising mind,
The wrongs of fate, the woes of human kind,
Thy blissful omens bid my spirit see
The boundless fields of rapture yet to be.
I watch the wheels of nature’s mazy plan,
And learn the future, by the past, of man.”

What is there in the “past of man,” by which we can “learn the future”? What achievements has the might of human genius wrought, that constitute the foundation of uplifting hope? Where shall we find the evidences of his greatness, the testimony of his capability for attaining the highest position that can be conceived by the most hopeful? Where, but in the revelations made by his powers of Invention and Discovery? Go out upon that beautiful lawn, on some star-bright evening, when the stillness of the night, and the pictured glory of the heavens invite the mind to meditation. What is the first reflection that crowds upon the attention? Is it not the inestimable vastness of the Universe, the inappreciable grandeur of Creation? But how have the heavens been “enrolled as a scroll” to our view, and our acquaintance introduced to each particular orb that wheels at a distance beyond the conceptions of man? What but the wonderful mind could tread the ethereal fields, and survey the world! Discovery, in conjunction with her indispensable handmaid, Invention, has resolved the wild conjectures of the ignorant beholder into certain knowledge, and thereby opened an inexhaustible source of human enjoyment. Without the application of scientific principles to practical purposes, which Invention has made, we should still see nothing in the heavens but heroes and animals, with which the imagination of the ignorant had peopled the skies.

Observe the stride of improvement, during the last half century, through every branch of practical life. When the sunny South, where the cotton plant whitens the field with its soft and downy fibre, was growing sterile, and rich fields were being abandoned, because the product could not be converted to profitable use, the Inventive Genius of Whitney brought out the Cotton Gin, and straightway the hearts of men leaped for joy, the plains were covered with virgin whiteness, and peace and plenty responded to the charm-

ing pleasantness of nature. And what is most astonishing in this case, is, that little gratitude was manifested to the inventor of that curious machine, which awoke a slumbering and discouraged people, as it were, by enchantment. More contracts entered into with him, were violated, than were fulfilled. Such was the concert among those who used this invention, that Whitney found it exceedingly difficult to prove, in a Court of Justice, that a single one was in use, although the clattering of half a dozen could be heard from the door-steps of the Court House. He had incurred immense debts in its production, and yet the people were unwilling to aid him in his necessities, occasioned in constructing that which was a fortune in every owner's hands. Here, then, we see the importance of such an Institution as we have organised, in furnishing relief and encouragement to Inventors.

The Spinning Jenny followed in the footsteps of the Cotton Gin, and, with her myriads of iron fingers, twists with lightning speed the woof and warp. Who, on passing through one of our mammoth manufactories, does not see and feel much that elevates the race in his estimation? How astonishing the amount of production by comparatively trifling labour!

Improvement has seized hold of everything within the reach of man. He has most thoroughly impressed himself upon the whole earth, and every year that passes, reveals more and more of his independent greatness.

Have we not, then, a good authority for the largest hope that can animate our spirits, and incite us to activity? The Telegraphs, Railroads, Steamboats, and the ten thousand other manifestations of the Inventive Genius, are sufficient to destroy the skepticism of man, with regard to the capabilities of the Race. There is no longer reason for want of faith in the human mind. It has proved its greatness by its achievements. It has demonstrated the capability of its powers for infinite expansion, and the boundlessness of Nature's resources for its improvement. But, though it has accomplished so much, it is still in the infancy of its development.

"How distant is the human mind from the perfection to which it may attain—from the perfection for which it was created! How incapable are we of grasping the whole future destiny of man! Let any one even descend into his own

mind—let him picture there the highest point of perfection to which man, to which society may attain, that he can conceive, that he can hope;—let him then contrast this picture with the present state of the world, and he will feel assured that society and civilisation are still in their childhood: that, however great the distance they have advanced, that which they have before them is incomparably, is infinitely greater.” *

But to conclude. What I have said, would seem to place the Association for Practical Science upon the benevolence of the people for its support. Benevolence is an ample foundation for any Institution which promises so largely for the public good, and seems to hold so important a place among the multiplied means for human advancement. By its encouragement, all, whether high or low, rich or poor, who have Inventive talent, will be incited to employ it in making further application of Science to the practical purposes of life. Now, unaided and single-handed, many are unable to manifest their powers, to embody their conceptions in a manner to be appreciated and rendered serviceable in promoting human good. This Institution will furnish every facility for the production of improvements. To it, all can resort for aid, and find at command all the power they need. Thus, by calling more Inventive talent into activity, this Association will be a powerful engine in the cause of Progress. As Inventions, more than anything else, distinguish the age, and characterise the civilisation of the nineteenth century, the importance of facilitating their production is apparent to all.

But this Institution does not appeal solely to the benevolence and advancing spirit of the people. As every truly noble enterprise should do, it promises to sustain itself; yea, more—to be a source of great pecuniary profit to all who contribute to its establishment. Immense sums have been realised by speculators, who have taken advantage of the necessities of Inventors, and obtained rights for a trifle. While the ingenious have pined in want, wealthy business men have doubled and tripled their fortunes by the inventions their authors were unable to perfect. This Institution, while it will secure justice to the talented, will itself profit largely by the aid it renders them, and instead of one or two commanding all the pecuniary advantages of new improvements, they will be enjoyed by many. Its

* Guizot's History of Civilisation.

terms of assistance will be fixed, and those who seek its aid, will not, as now, be at the mercy of the selfish. Thus, investments in this enterprise cannot be otherwise than profitable. This can be appreciated, by every one who has observed the revolutions wrought, as it were, by enchantment, in the various branches of business, in consequence of improvements which are the offspring of Invention. But we will not thus appeal to the money-making spirit of the people. An inducement infinitely higher is held out—one that is pure, and appeals to our philanthropic sentiments. Pecuniary speculation is a trifle with those whose virtuous souls are quickened into life by every opportunity to advance the Race.

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